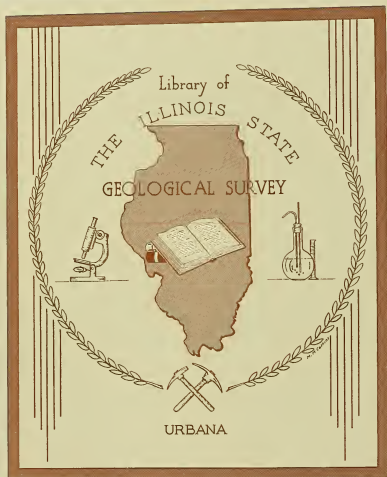


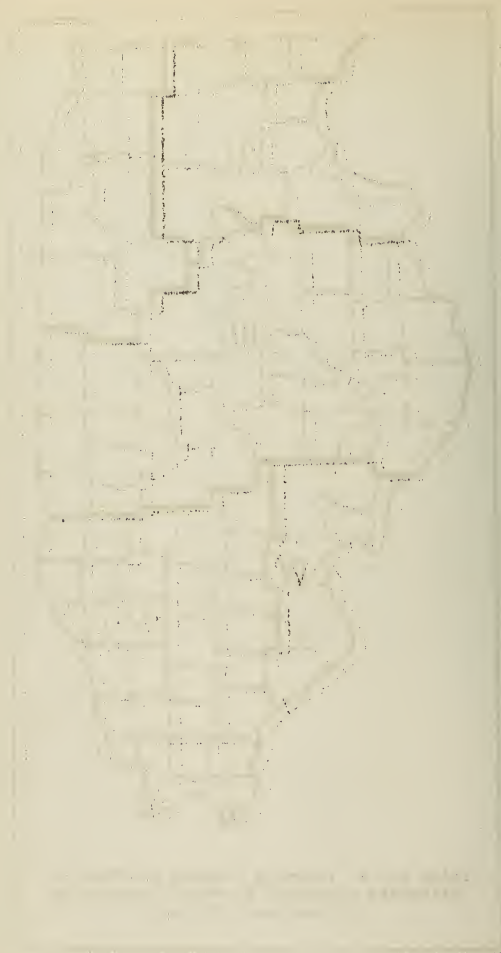


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M. M. Leighton, Chief
Urbana, Illinois

No. 21

INFORMATION CIRCULAR

June 19, 1937

CLAY PRODUCTS INDUSTRY IN ILLINOIS IN 1936

Preliminary Report

By W. A. Newton

The clay products industry is one of the largest non-fuels mineral industries in Illinois, in terms of value of production. It is the purpose of this preliminary report to place in the hands of the producers at an early date a summary of the statistical data for 1936 that has been obtained through their prompt cooperation.

The figures given in this report are subject to final revision, although more than 95 per cent of the producers have reported to date.

The total value of clay products produced in Illinois has increased each year since 1933, the preliminary total value for 1936 being \$10,884,512. This is a 60 per cent increase over the 1935 total. The largest portion of this increase was in the structural and refractory division of the industry, as shown in Table 1. The total value of pottery was higher in 1936 also, the figure as shown in Table 1 being partly an estimated total.

Table 1. -- Value of Clay Products, 1933 to 1936

Class	1933	1934	1935	1936
Structural and refractory clay products.	\$2,328,556	\$4,498,960	\$4,555,624	\$7,996,465
Pottery	<u>1,816,467</u>	<u>1,446,239</u>	<u>2,264,521</u>	<u>2,888,047*</u>
Total	\$4,145,033	\$5,945,199	\$6,820,145	\$10,884,512

* Partly estimated.



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Production of Clay Products, by Classes, 1936

In Table 2 are shown the production -- quantity, value, and quantity of stocks on hand at the end of the year -- of each class of clay product produced in Illinois during 1936. The preliminary figures show that each of these classes increased in total quantity produced and in total value received during 1936 over the 1935 figures.

Table 2. - Production of Clay Products, by Classes, 1936

Table 2. - Production of Clay Products, by Classes, 1936

	Quantity	Value	Quantity Stocks on Hand Dec. 31, 1936
Common brick (M)	188,098	1,456,082	68,709
Face brick (M)	61,206	861,675	20,566
Hollow brick (M)	2,755	57,121	423
Hollow building tile (tons)	139,699	651,925	45,609
Vitrified brick or block			
for paving (M)	10,798	201,561	3,491
for other purposes (M)	1,092	16,815	1,746
Drain tile (tons)	50,641	335,748	14,830
Fireclay products	---	962,091	---
Refractory cement			
(clay) (tons)	645	20,131	49
Clay sold, raw or prepared			
(etc.)	---	178,960	---
Other clay products**			
(except Pottery)	---	3,254,356	---
Pottery	---	2,888,047*	---

** Terra cotta, sewer pipe, flue lining, wall coping, and non-clay refractories included under "Other clay products, except Pottery".

* Partly estimated.

Final figures for production and value of each class of clay products during 1935 are given in Illinois Geological Survey Report of Investigations 43, "Illinois Mineral Industry in 1935".

To illustrate the increases that occurred during 1936 in the structural clay products division of the industry, Table 3 lists the four principal classes - common brick, face brick, hollow building tile, and drain tile, with the percentage increase in total quantity produced and total value received in each class over their respective 1935 totals. The largest increase of the four during 1936 was production and value of hollow building tile. The 1935 production of this class dropped in comparison to the total in 1934, while the other three classes continued to increase since the low year of production in 1933.

Table 3. - Percentage Increase of Certain Classes of Structural Clay Products During 1936 over the totals of 1935.

Class	Percentage increase in	
	Quantity	Value
Common brick	101	87
Face brick	75	80
Hollow building tile	200	228
Drain tile	51	35

In Table 4 are shown, by years from 1923 to 1936, insofar as data are available, the total production value of common brick, face brick, hollow building tile, drain tile, and pottery in Illinois. As shown in this table, the 1936 total production value of each of these classes of products is the largest in the past five or six years.

Table 4. - Value of Certain Clay Products Produced in Illinois, by Years (Dollars)

Year	Common Brick	Face Brick	Hollow Building Tile	Drain Tile	Pottery
1923	\$12,034,948			\$562,913	\$4,691,676
1924	12,588,270			388,770	5,293,180
1925	13,532,425			707,859	5,423,000
1926	13,840,945			569,978	5,612,411
1927	12,843,713			817,027	5,028,257
1928	11,139,684			872,267	5,698,005
1929	7,805,051			987,579	5,964,041
1930	3,708,649	\$2,301,076	\$997,628	---	4,174,459
1931	1,321,585	1,142,348	398,643	---	3,612,210
1932	363,948	378,454	123,172	95,928	1,837,033
1933	280,284	104,640	73,672	124,722	1,816,467
1934	590,691	365,978	169,661	128,963	1,446,239
1935	778,087	479,119	198,120	249,589	2,264,521
1936	1,456,082	861,675	651,905	335,748	2,888,047*

* Partly estimated.

The size of the brick business in Illinois during the post-War years preceding and during the industrial depression is shown in Table 4. It is not likely that the trend of building activity will, in the near future, reach the high level that it attained in those years following the War. However, it is significant that the southern soft wood regions are rapidly being depleted and that the West Coast remains as the only region with a surplus of lumber supply over local needs. It is suggested that although building activity may not be so great as in the past, the trend toward brick and brick veneer construction in present day building activities may require as many bricks in future building as in the past.

Production of Certain Types of Clay Products,
by Districts, 1936

The production quantity, value, and stocks on hand of common brick, face brick, hollow building tile, and drain tile for 1936 are grouped by producing districts in Table 5. Similar data for the year 1935 are given in Illinois Geological Survey Report of Investigations 43. The counties in each district are as follows:

<u>District</u>	<u>Counties</u>
Chicago	Lake, Cook, and Will
Northern Illinois	Bureau, Fulton, Knox, LaSalle, Livingston, and Tazewell
Central and Western Illinois	Henry, Macon, Menard, and Sangamon
East St. Louis	Madison and St. Clair
Other	Other

In Table 5 those districts in which less than three producers reported are combined.

Table 5. - Production of Certain Types of Clay
Products, by Districts, 1936

District	Quantity (Thousands)	Value (Dollars)	Quantity Stocks on hand (Thousands)
<u>Common Brick</u>			
Chicago	113,547	\$650,012	50,183
Northern Illinois	36,110	406,192	9,245
Central & Western Illinois	9,155	86,947	1,895
East St. Louis	15,861	153,393	3,665
Other	13,425	159,538	3,721
Total	188,098	\$1,456,082	68,709
<u>Face Brick</u>			
Northern Illinois	28,005	\$355,608	7,514
Central & Western Illinois	4,791	65,041	2,723
East St. Louis	19,398	274,080	8,430
Other	9,012	166,946	1,899
Total	61,206	\$861,675	20,566
<u>Hollow Building Tile</u>			
	(Tons)		(Tons)
Northern Illinois	27,006	\$154,995	13,553
Central & Western Illinois	16,985	74,635	2,360
East St. Louis	31,183	116,178	7,181
Chicago and Other	64,525	473,693	22,515
Total	139,699	\$651,925	45,609

Table 5. - Production of Certain Types of Clay Products, by Districts, 1936 (continued)

District	Quantity (Thousands)	Value (Dollars)	Quantity Stocks On hand (Thousands)
<u>Drain Tile</u>			
	(Tons)		(Tons)
Northern Illinois	19,248	\$160,227	4,191
Central & Western Illinois	6,774	45,798	2,834
Other	<u>24,619</u>	<u>129,723</u>	<u>7,805</u>
Total	50,641	\$335,748	14,830

Monthly Shipments and Stocks

Shipments of common brick, face brick, and hollow building tile in Illinois during 1936, by months, are shown in Table 6. These statistics are compiled by the U. S. Bureau of Census from reports of selected identical plants. Similar data for the year 1935 are given in Illinois Geological Survey Report of Investigations No. 43, and similar tables for 1932, 1933, and 1934 in Report of Investigations 39. The yearly totals and monthly averages are shown in Table 7 for comparison.

Table 6. - Clay Products, 1936

Month	Number of Plants	Shipments		Thousands of stocks on hand at end of month
		Thousands	Value	

Shipments of Common Brick in Illinois*

January	31	4,865	\$ 47,861	59,614
February	31	3,023	29,508	57,421
March	32	10,556	105,567	50,711
April	33	12,616	126,681	42,373
May	38	17,229	164,442	44,056
June	37	18,099	175,258	60,083
July	38	17,502	164,470	62,991
August	38	19,457	183,875	54,552
September	38	19,882	191,702	54,574
October	39	21,212	202,914	63,831
November	39	18,402	177,289	71,185
December	40	18,990	175,656	74,472

Table 6. - (Continued)

Month	Number of Plants	Shipments		Thousands of stocks on hand at end of month
		Thousands	Value	
<u>Shipments of Face Brick in Illinois*</u>				
January	16	1,168	\$ 17,584	25,236
February	16	549	9,196	28,121
March	16	4,161	68,869	27,653
April	16	6,894	113,119	26,618
May	18	9,282	157,020	24,023
June	18	9,537	161,445	23,925
July	18	8,586	149,733	23,158
August	18	7,847	137,279	23,595
September	18	6,615	112,151	24,270
October	18	6,828	116,030	24,592
November	17	4,765	81,175	25,344
December	16	3,714	62,638	24,355

Shipments of Hollow Building Tile in Illinois*

		(Tons)		(Tons)
January	15	1,077	\$ 6,220	28,793
February	15	476	2,698	28,355
March	14	1,660	9,552	28,157
April	14	2,704	15,135	27,731
May	16	5,793	29,997	33,557
June	15	8,322	45,974	35,333
July	17	6,640	38,092	34,840
August	17	7,351	39,894	34,623
September	17	7,345	42,152	38,084
October	17	7,892	43,268	39,078
November	18	7,990	43,741	32,675
December	18	6,725	36,316	30,908

* Source: Monthly report on "Structural Clay Products", Bureau of Census.

Table 7. - Shipments of Common Brick, Face Brick, and
Hollow Building Tile in Illinois by Years
1932-1936
(Data from the U. S. Bureau of Census)

Year	SHIPMENTS		VALUE		Average value per Thousand	Stocks on hand at end of year (Thousands)
	Total (Thou- sands)	Average per month (Thou- sands)	Total Dollars	Average per month Dollars		
<u>Common Brick</u>						
1932	56,388	4,699	\$446,906	\$37,242	\$7.93	69,771
1933	51,011	4,251	403,813	33,651	7.92	58,993
1934	62,269	5,189	564,164	47,014	9.06	55,120
1935	84,085	7,007	835,775	69,648	9.94	63,283
1936	181,833	15,153	1,745,223	145,435	9.60	74,472
<u>Face Brick</u>						
1932	32,439	2,703	\$464,398	\$38,700	\$14.31	46,668
1933	22,825	1,902	305,168	25,432	13.81	26,863
1934	24,657	2,055	409,542	34,128	16.61	23,281
1935	36,923	3,077	596,248	49,687	18.85	24,411
1936	69,946	5,754	1,186,239	98,853	16.96	24,355
<u>Hollow Building Tile</u>						
	(Tons)	(Tons)			(Per ton)	(Tons)
1932	30,930	2,578	\$104,922	\$8,744	\$3.39	45,282
1933	16,585	1,382	65,615	5,468	3.96	39,519
1934	31,580	2,632	163,312	13,609	5.17	34,766
1935	21,978	1,832	131,370	10,948	5.98	28,757
1936	63,975	5,331	353,039	29,420	5.52	32,678

Total shipments and value increased markedly. The average value decreased for all three products according to this table. However, data on hollow building as reported to the U. S. Bureau of Census are from about 16 identical producing plants, while the total as reported to questionnaires sent out by the Geological Survey, as shown in Table 1, was compiled from reports of 26 plants. Table 3 (which is compiled partially from figures given in Table 1) shows that the production value of hollow building tile increased more than the production, which means an increase in unit price. This discrepancy in value per ton between the two sets of statistics is probably because those 16 plants reporting shipments to the U. S. Bureau of Census placed a lower unit value on hollow building tile during 1936 than they did in 1935, but the average unit price for the 26 plants reporting to the Illinois Geological Survey was somewhat higher in 1936 than in 1935. The same may be said for face brick.

Stocks on hand of common brick and hollow building tile at the end of 1936 were higher than at the end of 1935, while face brick stocks were slightly lower in those plants reporting to the U. S. Bureau of Census.

It is not the actual number or quantity of stocks on hand that plays an important part in the economic picture, but to the producer it is the relation of the quantity of stocks to current demand which is important. For economy in operation, the individual producer must balance his inventory and production to satisfy the normal demand.

Table 8 shows the relation of stocks on hand at the end of each year to the demand for that current year in terms of months' supplies on hand, December 31. These calculations are based on the figures given in Table 7.

Table 8. - Supply of stocks on Hand at End of Year,
in Terms of Months, 1932-1936
(Calculated from data given in Table 3)

Year	Common Brick (Months)	Face Brick (Months)	Hollow Building Tile (Months)
1932	14.8	17.3	17.6
1933	13.9	14.1	28.6
1934	10.6	11.3	13.2
1935	9.0	7.9	15.7
1936	4.9	4.2	6.1

The purpose of Table 8 is to show how increased demand during the past few years has enabled the producers to reduce their stocks into better balance. This table gives a general picture of the industry, but each producer should evaluate his own particular situation in regard to the amount of inventory he should carry. In analyzing Table 8, the probable increase or decrease in demand for the ensuing months must be taken into account.

Since the clay products industry is more or less dependent upon the extent of building activity, a brief review of construction activities as revealed by building permit data is in order. A market analysis of building construction will be presented in the 1936 final statistical review of the Illinois Mineral Industry.

The first pronounced measure of building recovery was in 1935. The total value of building permits issued in the 17 cities listed in Table 9 increased 84 per cent during 1935 in comparison to the 1934 total. As shown in Table 9, the total value of building permits issued in these cities continued to increase in 1936, the total being 57 per cent above that of 1935.

Table 9. - Value of Building Permits in 16 Illinois Cities and St. Louis, Missouri**

City	1934	1935	1936 (Preliminary)	Per cent Increase
Aurora	282,282	250,270	557,779	122.87
Bloomington	238,046	579,122	300,615	-48.09
Chicago	7,727,351	12,936,409	19,007,332	46.94
Cicero	162,885	198,240	200,000*	0.89
Decatur	577,640	588,102	872,839	48.42
East St. Louis	265,498	869,123	392,083	-54.89
Elgin	169,946	217,945	499,401	121.14
Evanston	741,700	947,750	2,108,200	122.44
Freeport	99,887	229,090	272,252	18.84
Moline	170,653	335,893	619,238	84.36
Oak Park	181,850	626,200	1,491,575	138.19
Peoria	910,987	1,791,342	4,649,580	159.26
Quincy	58,314	95,065	224,820	136.49
Rockford	227,300	374,065	1,191,295	218.47
Rock Island	322,892	332,906	1,499,587	350.46
Springfield	326,184	456,453	2,887,557	532.61
St. Louis, Missouri	4,998,453	11,355,867	13,775,132	21.30
Total	\$17,461,868	\$32,183,842	\$50,549,285	57.00

** Data from Commercial and Financial Chronicle.

* Estimate.

The value of permits issued increased in 15 of the 17 cities during 1936, with Bloomington and East St. Louis showing decreases. These two cities had increases of 143 per cent and 130 per cent, respectively, in 1935 over 1934. More than one-half of these 17 cities had increases in value of 1936 building permits of more than 100 per cent as compared to 1935.

Building construction in Illinois appears to be increasing at approximately the same rate as it is in other parts of the country. In Table 10 are presented data compiled by the F. W. Dodge Corporation showing construction contracts awarded during the past three years in 37 states east of the Rocky Mountains.

Table 10. - F. W. Dodge Corporation Figures of
Construction Contracts Awarded in
37 States East of the Rocky Mountains*

(In thousands of dollars)

Type	1934	1935	1936	Per cent increase over 1935 (Calculated)
Commercial buildings	150,595.8	164,479.8	249,136.1	51.5
Factory buildings	116,078.6	108,858.5	198,019.1	82.4
Educational buildings	117,503.2	173,458.7	226,146.9	30.4
Hospitals & Institutions	37,308.8	47,056.9	74,120.1	57.5
Public buildings	55,672.0	97,786.6	102,208.2	4.5
Religious, etc., buildings	18,298.9	23,674.3	28,252.9	19.3
Social, etc., buildings	47,574.5	60,173.8	75,376.4	25.3
Non-residential buildings	543,031.8	675,488.6	953,259.7	41.1
Residential buildings	248,840.1	478,843.1	801,623.8	67.4
Total buildings	791,871.9	1,154,331.7	1,754,883.5	52.0
Public works, etc.	625,044.5	578,541.8	714,142.7	23.4
Public utilities	126,192.0	111,671.4	206,269.8	84.7
Total construction	1,543,108.4	1,844,544.9	2,675,296.0	45.0

* Data from Commercial and Financial Chronicle, January 23, 1937.

This table shows that contracts awarded for non-residential building in these states during 1936 amounted to about 150 million dollars more than that for residential building. However, the 1936 total residential awards increased 67 per cent over the 1935 total, while non-residential increased but 41 per cent. The greatest increase for the latter class of construction was for factory buildings, hospitals and institutions, and commercial buildings. Public utilities increased 85 per cent over the 1935 total in this class. Public works contracts awarded showed a 23 per cent increase.

Although these statistics, as compiled by the F. W. Dodge Corporation, apply to 37 states east of the Rocky Mountains, the trends in types of construction contracts awarded in Illinois are essentially the same.

The volume of home building in this State should increase for the next few years as in other sections of the country due to depreciation, obsolescence, increased population, and severe contraction of building during the depression years.

Table 11 presents building permit data for six groups of Illinois cities (including St. Louis, Missouri), in millions of dollars, for the years 1920 to 1936. The remarkable return of building construction during the past two years is shown. Also pictured by this table are the great strides construction must take before it can be said that normal building conditions are restored. While it is improbable that the activity in building in the period 1926-1928 will occur in the future, the level of building activity in 1936 is probably much below normal requirements.

Table 11. - Value of Building Permits of Six Groups
of Illinois Cities from 1920 to 1936
(In millions of dollars)

Year	Chicago, Oak Park, Evanston, Cicero	St. Louis and East St. Louis	Rock Island and Moline	Rockford and Freeport	Elgin and Aurora	Springfield, Decatur, Bloomington, Peoria
1920	79.5	19.6				9.3
1921	135.6	18.0				8.1
1922	243.7	27.9				11.2
1923	351.3	44.3	2.1	4.8	4.7	10.1
1924	316.9	43.1	2.2	4.9	4.4	15.3
1925	382.9	60.1	2.3	7.4	7.2	17.9
1926	386.9	44.3	2.6	6.5	7.7	16.4
1927	378.0	47.7	3.4	8.2	4.7	14.0
1928	338.3	45.5	2.8	7.7	5.7	13.2
1929	216.2	29.8	4.4	6.2	3.7	11.9
1930	84.6	18.8	2.1	3.5	2.2	9.3
1931	48.5	17.7	1.2	.9	1.8	5.4
1932	4.8	4.6	.3	.9	.3	1.5
1933	4.3	10.3	.3	.2	.2	2.8
1934	8.8	5.3	.5	.3	.5	2.1
1935	14.7	12.2	.7	.6	.5	3.4
1936	22.8	14.2	2.1	1.5	1.1	8.7

The total value of building permits, the number of permits issued, and the average value per permit for 16 Illinois cities are given, by months, for 1936 in Table 12.

Table 12. - Value of Building Permits in 16 Illinois Cities*, by Months, 1935-1936
(In Dollars)

Month	1 9 3 5			1 9 3 6		
	Value of Building Permits	Number of Permits	Average Value of Permit	Value of Building Permits	Number of Permits	Average Value of Permit
January	\$94,963	151	\$628.8	\$809,143	203	\$3,985.9
February	165,307	222	744.6	214,525	141	1,230.6
March	704,078	379	1,857.7	974,588	632	1,542.0
April	790,493	601	1,315.2	3,510,586	752	4,668.0
May	362,406	610	594.1	1,516,786	982	1,545.1
June	686,543	629	1,091.5	1,027,920	1,077	954.4
July	526,791	646	815.5	1,058,057	828	1,277.5
August	499,388	684	730.1	1,076,839	894	1,204.5
September	806,575	713	1,131.2	1,299,126	1,078	1,205.1
October	637,374	782	815.1	1,278,933	1,068	1,197.5
November	819,422	521	1,572.8	1,086,265	744	1,433.1
December	1,124,542	307	3,663.0	1,752,578	562	3,118.2

* Figures for the 16 cities: Aurora, Bloomington, Champaign, Danville, Decatur, East St. Louis, Elgin, Freeport, Joliet, Moline, Peoria, Quincy, Rockford, Rock Island, Springfield, Waukegan.

These figures are calculated from reports given in the monthly issue of the Illinois Journal of Commerce. This table shows that the total value of permits issued in these 16 cities was higher each month during 1936 as compared to the corresponding month of 1935. There were more permits issued each month in 1936, except during February, but the average value per permit was smaller during some months.

